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Do Migrants Send Remittances as a Way of Self-Insurance?[☆]

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Abstract

How do risk preferences affect migrant remittance behaviour? Examination of this relationship has only begun to be explored. Using a tailored representative survey of 1500 immigrants in the Greater Dublin Area, Ireland, we find a positive and significant relationship between risk aversion and migrant remittances. Risk-averse individuals are more likely to send remittances home and are, on average, likely to remit a higher amount, after controlling for a broad range of individual and group characteristics. The evidence we obtain is consistent with a "purchase of self-insurance" motive to remit in that we also find support for more remittances being sent by risk-averse immigrants who face higher wage risks and to individuals with more financial resources.

Keywords: Migration, Risk Aversion, Remittances, Self-Insurance

JEL: D81, F22, F24, J15, J61

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1. Introduction

The scale and growth of global remittance flows over the last decade has been unprecedented. Officially recorded remittances to developing countries have quadrupled over the last decade from US$ 85 billion in 2000 to US$ 372 billion in 2011 (World Bank, 2011), a value three times greater than total official development assistance.

While this substantial global flow of money has motivated a great deal of research, the reasons behind why people remit are still an object of investigation. An already long debate has indeed been taking place over whether remittances are sent as a result of broadly defined altruistic or self-interested motivations.[1] Becker (1974) proposed the seminal model of altruism as the main determinant of inter-household transfers. This model was first tested by Cox (1987), who found that inter-vivos transfers in the United States were more consistent with exchange-related motives than with pure altruism. Several ensuing studies, including field evidence from a variety of developed and developing countries at different points in time, have also failed to support altruism as a motivation for remittances – or, at least, as the single motivation for remittances.[2] A more recent strand of research has conducted behavioural experiments to examine the altruistic motivations behind giving. They found an important role for selfish or reciprocal motives – desires on the part of givers to reward recipients for past behavior or to influence future behavior – in addition to altruism and social pressure as determinants of giving behavior.[3] Overall, the evidence in the literature is consistent with mixed motives for remittance behavior, as discussed by Brown and Jimenez (2011): in line with the findings of Cox (1987), Cox, Eser and Jimenez (1998, Cox, Hansen and Jimenez (2004), and Kazianga (2006), they observe that altruistic remittance motives dominate below a certain threshold for the income of remittance recipients, whereas exchange motives seem to take the lead above that threshold.

[1] Arrondel and Masson (2006), Rapoport and Docquier (2006), and Cox and Fafchamps (2008) are good sources reviewing the literature on private giving.

[2] See, for instance, Lucas and Stark (1985) on evidence for Botswana; Altonji et al. (1992, 1997) for the United States; Cox, Eser and Jimenez (1998) for Peru; Cox, Hansen and Jimenez (2004) for the Philippines; Kazianga (2006) for Burkina Faso; Osili (2007) for Nigeria; Brown and Jimenez (2011) for Tonga; and DeWeerdt, Genicot, and Mesnard (2014) for Tanzania.

[3] These behavioral studies include Andreoni and Vesterlund (2001), Andreoni and Miller (2002) and Camerer and Fehr (2004) who explored the existence and nature of altruistic motives for giving. More recent studies that found the prevalence of non-altruistic motivations for giving include Leider et al. (2009), Ligon and Schechter (2010), DellaVigna et al. (2012), Binzel and Fehr (2013), and Batista, Silverman and Yang (2014).

Restricting our analysis to non-altruistically motivated remittances *outside the household*,[4] we can further distinguish between three main different self-interest or exchange incentives to remit. First, the absent remittance sender may be motivated by a wish to guarantee the provision of services to his/her family left behind by the remittance recipients outside the household (purchase of current and future goods and services for the benefit of others). Second, the remitter may be investing in his/hers good reputation in the home community (which may mean that remittances are the result of social pressure as in Chort et al., 2012; or of reciprocation to the network who covered the initial migration costs as in Ilahi and Jafarey, 1999). Finally, the migrant may remit as a way to self-insure in the event of an unexpected negative shock that he/she experiences in the host country (purchase of future goods and services for self in specific states of nature), as in Amuedo-Dorantes and Pozo (2006).

In this paper we investigate the extent to which the desire of migrants to self-insure against future risks faced in the host country constitutes a motive to send remittances – this is our definition of self-insurance purchased from the migrant's network at home and what we call the *self-insurance motive* to remit. There is evidence that networks at home often provide financial assistance to migrants in case of negative income shocks in the receiving country and that home networks are able to monitor the financial situation of the migrant through contacts with network members in the receiving country (Agarwal and Horowitz, 2002; De la Briere et al., 2002). In this setting, because the willingness of network members at home to provide financial assistance in difficult times is likely to depend on past remittances from the migrant, the decision to remit can be viewed as insurance against future negative shocks.

While this self-insurance motive is sometimes mentioned in the literature, there are few studies that test this motive empirically - notable exceptions being Lucas and Stark (1985); Agarwal and Horowitz (2002); and Amuedo-Dorantes and Pozo (2006). The existing literature has mostly used two approaches to empirically test the self-insurance motive to remit. The first strand of literature proposes that a positive relationship between income of migrant networks at home and

[4] A commonly reported motive for (non-altruistic) remittances within the household is a desire by the migrant remitter to save or invest in the home country – see, for instance, Ashraf et al. (2014). This is in addition to altruistic motives such as income smoothing or insurance for household members in the origin country, as studied by Gubert (2002), Yang and Choi (2007) and Amuedo-Dorantes and Pozo (2011).

migrant remittances is indicative of a self-insurance motive to remit, while a negative relationship indicates altruism as the relevant remittance determinant. This would happen because migrants remitting with an insurance motive will increase the amount remitted when networks at home have larger income values and hence offer a larger insurance payoff – the underlying assumption being that the willingness of network members at home to provide financial assistance in difficult times is likely to depend on past remittances from the migrant and on the magnitude of their income flows. Alternatively, migrants will increase remittances in response to worsening economic situations in the home country when altruism is the dominant factor. Testing this theory empirically Lucas and Stark (1985) found that the 'insurance motive' dominated, while Agarwal and Horowitz (2002) concluded that altruism was the main motive for remitting. The main drawback of this approach is that it labels a set of possible reciprocal remittance motives (including any desire on the part of givers to reward recipients for past behavior or to influence their current and future behavior) as self-insurance, which is presented as the single (mutually exclusive) alternative to altruistic remittance motives. Moreover, this testing approach focuses entirely on the remittance recipients and misses the variation in risk faced by the migrants themselves, which must have a strong impact on the demand for this type of self-insurance through the remittance channel.

An alternative, more direct way of testing for the self-insurance mechanism is to look at the wage risks that migrants face in the host country and how these relate to remittances. If migrants respond to increases in wage risk in the receiving country by remitting more, this may be interpreted as evidence of remittances as a way of purchasing self-insurance (against more likely future negative shocks affecting the migrant). Note that if remittances were motivated by altruism, one would not be able to predict an obvious change in remittances - although altruistic motives may still be at play simultaneously with insurance motives. Amuedo-Dorantes and Pozo (2006) find evidence that Mexican migrants remit more when faced with higher wage risk, and seem therefore driven, at least in part, by insurance motives. This approach has the advantages of being able to account for the wage risk faced by migrants in the host country using a number of proxy variables, and also of allowing simultaneously for the possibility of both altruistic and insurance motives for remittances. One limitation of the approach taken by Amuedo-Dorantes and Pozo (2006) is, however, the difficulty in ensuring that the proxy variables used for wage risk (such as legal status, educational attainment, time in the US, work experience, type of job and industry of

employment) are not conflated with differences in migrant unobservable characteristics, such as risk attitudes, which can influence the demand for insurance.

Our paper uses a unique representative data-set of 1500 immigrants in the Greater Dublin area, in Ireland, which includes detailed information not only on the characteristics of individual migrants and their networks both in the home and in the host countries, but also on migrant remittances, wage risks and risk preferences. With this information in hand, we build on the work of Amuedo-Dorantes and Pozo (2006) and use the established positive relationship between individual risk preferences and the purchase of insurance to investigate the existence of an insurance motive for sending remittances.

Our identification strategy rests first of all on the hypothesis that more risk-averse individuals have a preference for purchasing more insurance than less risk-averse individuals. In the migration context, this would translate into more risk-averse migrants remitting more with the aim of self-insuring against potential negative outcomes. Therefore, a statistically significant positive link between risk aversion and money sent home would provide supportive evidence for the insurance motive.

This hypothesis that more risk-averse individuals have a preference for purchasing more insurance than less risk-averse individuals is well grounded both in theoretical and empirical terms. To illustrate this fact, we start by proposing a simple theoretical model where migrants may remit for altruistic, self-insurance purchase or other exchange motives. In this well-defined context, we derive the results that the purchase of self-insurance by a migrant wishing to insure against future bad states of nature indeed increases with risk aversion. This relationship is also supported by recent experimental field evidence offering actual insurance to real-life subjects in risky contexts - as opposed to the line of behavioural experimentation using university students as experimental subjects. Empirical studies in domains as different as health insurance, agricultural weather insurance, and flood insurance – respectively the works by Galarza and Carter (2011), Hill et al. (2013) and Petrolia et al. (2013). All of these studies find positive significant relationships between risk aversion and insurance take-up.

To complement this novel empirical strategy that uses risk preferences as a source of variation in establishing self-insurance as a remittance motive, and in order to provide convincing

evidence to support this motive, one needs to also account for other correlates with the self-insurance motive for remittances that were introduced in the past literature. Namely, we need to control for the income risk faced by the migrant in the host country (which will likely determine insurance demand), and also for the income variation faced by the migrant's network in the home country (which is a determinant of the expected insurance payoff). For this purpose, our empirical analysis uses proxies for the income risk that the individual migrant faces in the host country, and also for the income variation in his network at home. We expect the relationship between risk aversion and remittances to be stronger for individuals facing higher wage risk and remitting for self-insurance motives, and not meaningful for those not facing wage risk and remitting for altruistic motives. The inclusion of information on individual risk preferences to the empirical strategy followed by Amuedo-Dorantes and Pozo (2006) should help to control for some of the unobserved heterogeneity potentially present in previous work, in addition to also providing a direct test of the self-insurance motive for migrant remittances.

Overall, we find that there is a statistically significant positive relationship between being risk averse and both the probability to remit and the amount remitted by migrants. This result remains statistically significant after including a wide range of controls suggested by the existing literature. Furthermore, we find that the relationship between risk aversion and remittances is especially strong for individuals with temporary contracts, those expressing an intention to return and those with working network members in the sending country – a variety of robustness checks that strengthens the support for the self-insurance motive of remittances. While we cannot definitely exclude other motives to remit, our results do suggest that migrants remit with the purpose of self-insuring against uncertainty faced in the host country.

The rest of the article is organized in the following way: Section 2 proposes a theoretical framework for our analysis and describes the empirical strategy to be used; Section 3 describes the survey design and presents descriptive statistics, while Sections 4 and 5 present and discuss the results of our empirical work. Finally, Section 6 concludes.

2. Theoretical Framework and Empirical Strategy

2.1. Theoretical framework

We aim at examining the question of whether risk averse individuals send more remittances with the purpose of purchasing self-insurance from their networks outside of the household in the home country. For this purpose, it is useful to provide a theoretical framework to our analysis.

The model we propose is a simple, tractable model that illustrates different motivations to remit (namely altruism towards own family left behind in the origin country, and purchase of self-insurance outside of the family in the origin country), while allowing for the possibility mixed motives – i.e. that all of the remittance motives in the model are non-exclusive and simultaneously at play. This model is more general than the mixed motive models proposed by Cox (1987), Cox et al. (1998, 2004) and Brown and Jimenez (2011), in the sense that it does not provide any threshold that determines the prevalence of each of the different remittance motives. Instead, we here allow for altruistic, self-insurance and exchange transfers all to possible happen simultaneously provided their net marginal benefits are equalized.

Our model, which we now turn to describe, is an extension of the theoretical model proposed by Amuedo-Dorantes and Pozo (2006). However, we use a CRRA utility function that allows us to do comparative statics on amounts remitted as a function of the relative risk aversion parameter, η. Also, we reinterpret the asset accumulation mechanism originally proposed by Amuedo-Dorantes and Pozo (2006) as any

Let us consider a two-period model. In the first period, individuals earn a sure amount Y_H, while there is income uncertainty in period 2. The two possible outcomes for income in period 2 are Y_H and Y_L, such that $Y_H > Y_L$.

The intertemporal utility function for each migrant is given by:

$$U = \frac{\left({C_1}^{\omega} a^{1-\omega}\right)^{1-\eta} - 1}{1-\eta} + \delta \frac{{C_2}^{1-\eta} - 1}{1-\eta} \tag{1}$$

where $\eta > 0$ is the (constant) relative risk aversion parameter; $\delta < 1$ is the discount factor specifying the relative tastes between utility in the two periods; and $0 < \omega < 1$ is a weighting

parameter denoting the utility contribution of the migrant's consumption at time 1, C_1, relative to his/her altruistic payments to family members left behind, a.

Migrants may choose to self-insure themselves against the bad state of nature in period 2. In order to do so, they can make a payment x at time 1 to their network at home, which results in a linear payoff $k.x$, with $k > 0$, to be received in period 2 in the event that the bad state of nature realizes. We assume insurance is not complete, $k.x < Y_H - Y_L$. This assumption seems reasonable in the context of migrants self-insuring against possible negative shocks occurring in the host country, but who do not otherwise choose to return in face of this risk.

The important distinction between altruistic and self-insurance payments is that the migrant expects nothing in return for the altruistic payment, whereas there is an exchange between the migrant and the self-insurance payment recipient in the event that the bad state of nature realizes in period 2.

In addition to purchasing self-insurance from their network in the origin country, migrants can choose to make an alternative type of investment. In this case, migrants save an amount z out of their period 1 income, Y_H, which pays interest at the rate of return r in period 2, regardless of the state of nature. Note that this investment and its rate of return may be interpreted broadly: z may be simply interpreted as migrant savings, earning an interest rate r; but one may also think of z as an exchange-motivated transfer from the migrant to his/her network at home, which pays back $z.(1+r)$.

Purchasing self-insurance from the migrant's network in the origin country differs from the migrant's asset accumulation in the sense that migrant savings (and their return) are available to the migrant in period 2, regardless of economic conditions, whereas network-provided self-insurance will only work if the bad state of nature is realized in period 2.

The migrant budget constraints for periods $t = 1$ and $t = 2$ will therefore be given, respectively, by:

$$C_1 \leq Y_H - x - z - a_1 \tag{2}$$

$$C_2 \leq \pi[Y_L + g(x) + z(1+r)] + (1-\pi)[Y_H + z(1+r)] \tag{3}$$

where π is the probability with which the migrant expects the bad state of nature to realize.

The migrant therefore needs to solve the problem of maximizing expected intertemporal utility (1), subject to (2) and (3), in order to choose consumption at time $t = 1$ and $t = 2$, the level of altruistic payments, a, the amount of self-insurance purchased from the network abroad, x, and the investment amount, z.

Optimality conditions imply that altruistic payments must be such that verify the intratemporal optimality condition equalizing the altruistic payments to period 1 consumption ratio to a function of the migrant's altruistic preference parameter, ω:

$$\frac{C_1}{a} = \frac{\omega}{1-\omega} \tag{4}$$

In terms of intertemporal equilibrium, two conditions arise, one relative to each intertemporal transfer mechanism:

$$C_2{}^{\eta} = C_1{}^{\eta\omega+1-\omega} a^{(\eta-1)(1-\omega)} \frac{\delta\pi k}{\omega} \tag{5}$$

$$C_2{}^{\eta} = C_1{}^{\eta\omega+1-\omega} a^{(\eta-1)(1-\omega)} \frac{\delta(1+r)}{\omega} \tag{6}$$

Note that these two intertemporal equilibrium conditions imply that the expected return on self-insurance is the same than that on investment, $\pi k = 1 + r$.

It is clear to see that equations (4)-(6), together with the budget constraints (2)-(3), form a system of equations that jointly determines the optimal choices of C_1 and C_2, a, x, and z. We can use this system of equations to derive comparative statics. In particular, we wish to examine the response of the three types of remittances (altruistic, self-insurance or exchange motivated) to different degrees of risk aversion. Using the implicit function theorem, we obtain:

$$\frac{\delta a}{\delta \eta} = 0 \tag{7}$$

This result implies that altruistic remittances do not depend on a migrant's degree of risk aversion, which seems a sensible property.

$$\frac{\delta x}{\delta \eta} = \frac{ln\left(\frac{C_1{}^{\omega} a^{1-\omega}}{C_2}\right)}{\frac{\eta\pi k}{C_2} + \frac{\eta\omega+1-\omega}{C_1}} > 0 \text{ since } \frac{C_1{}^{\omega} a^{1-\omega}}{C_2} = (\pi.k)^{\eta} = (1+r)^{\eta} > 0 \tag{8}$$

$$\frac{\delta z}{\delta \eta} = \frac{ln\left(\frac{{c_1}^{\omega} a^{1-\omega}}{c_2}\right)}{\frac{\eta(1+r)}{c_2} + \frac{\eta\omega+1-\omega}{c_1}} > 0 \text{ since } \frac{{c_1}^{\omega} a^{1-\omega}}{c_2} = (\pi.k)^{\eta} = (1+r)^{\eta} > 0 \qquad (9)$$

Expressions (8) and (9) imply that both self-insurance and savings/investment should increase in the presence of higher levels of (relative) risk aversion. This finding is sensible in light of the theoretical definition of risk aversion as demanding additional insurance, and also if we think of the exchange-motivated remittances as a type of precautionary savings that increase in an uncertain environment in the presence of increased risk aversion.

2.2. Econometric model and empirical strategy

To introduce empirical content to our theoretical model, we depart from our finding that more risk-averse migrants should remit more with the aim of self-insuring against potential negative outcomes. Therefore, identification of a statistically significant positive link between risk aversion and money sent home would suggest support for the self-insurance motive – although not excluding the possibility of other remittance exchange motives by the migrant, who may be using remittances to transfer goods or services broadly defined into the future.

In this context, the relevant empirical relationship between risk aversion and remittances can be summarized as follows:

$$Remittances_i = \beta_1 \, Risk \, Aversion_i + \beta_2 \, Individual \, Controls_i + \varepsilon_i \qquad (10)$$

This expression describes how migrant remittances vary with risk aversion, while controlling for an array of individual characteristics that are correlated with a migrant's willingness and capacity to remit. These controls include basic demographics, such as gender, age, years of schooling, religion, marital status, having children, industry of occupation, income, financial distress indicators, and world region of origin. In addition, our specification includes controls for likely determinants of the willingness to purchase self-insurance through remittances: namely income risk faced by the migrant in the host country (proxied by employment contract duration) and proxies for the likelihood to return home (such as the reported intention to return, number of years in Ireland, partner living in Ireland and Irish partner), which are both correlated with the likelihood of requesting financial assistance upon return home, and hence determine insurance

demand. We also include as a control income variation faced by the migrant's network in the home country (proxied by employment status of the network member, an indicator of financial resource availability), which may be interpreted as a determinant of the expected insurance payoff. Finally, we also control for the presence of migrant savings, which are an additional (or alternative) way of transferring income into the future, which may also be used in case of bad risks taking place, as described in our model.

We estimate different specifications of this econometric model. In additional specifications, we also add interaction terms for risk preferences and contract duration, intention to return and employment status of network members in order to provide a stricter test of the "self-insurance purchase" motive for remittances. This is because one would expect that risk-averse migrants would seek additional insurance when they face a larger likelihood of needing to request financial assistance from their networks and also when they perceive greater financial availability in their networks at home.

We are interested in examining whether migrants decide to remit (the extensive margin of remittances), and the amount of remittances sent (the intensive margin of remittances). However, remittance data suffer from two main problems: censoring (i.e. individuals who do not remit because their circumstances do not allow them to, e.g. they do not have enough disposable income) and sample selection (i.e. individuals who could remit, but choose not to do so). In order to deal with these econometric problems, we estimate the double hurdle model proposed by Cragg (1971), and also used by Sinning (2011), Bettin et al. (2012) and Brown et al. (2014). In this model, the first hurdle follows a probit model of participation, given by equation (11), where the dependent variable is a binary variable taking the value of 1 when the individual migrant sent any form of remittances in the year before the survey; and the second hurdle of the model, given by equation (12), is represented by a standard linear regression model of the amount remitted. More specifically our econometric specification is:

$$Prob\,[Y_i > 0|\boldsymbol{X_i}] = \Phi\,[(\beta_1 x_{i1} + \beta_2 x_{i2} + \beta_{12} x_{i1} x_{i2} + \boldsymbol{X_i}\beta)/\sigma] \quad (11)$$

$$E[Y_i|Y_i > 0, \boldsymbol{X_i}] = \beta_1 x_{i1} + \beta_2 x_{i2} + \beta_{12} x_{i1} x_{i2} + \boldsymbol{X_i}\beta + \sigma \frac{\phi((\beta_1 x_{i1} + \beta_2 x_{i2} + \beta_{12} x_{i1} x_{i2} + \boldsymbol{X_i}\beta)/\sigma)}{\Phi((\beta_1 x_{i1} + \beta_2 x_{i2} + \beta_{12} x_{i1} x_{i2} + \boldsymbol{X_i}\beta)/\sigma)} \quad (12)$$

where Y_i is the value of any remittances sent by individual *i* to anyone in his network in the home country in the last year; β_1 is the coefficient on the variable summarizing risk aversion x_{i1}; x_{i2} is a dummy variable for the type of contract, intention to return or employment status of network member; and β_{12} captures the interaction effect between x_{i1} and x_{i2}. $\boldsymbol{X_i}$ is the vector of control variables described previously, which are likely correlated with remittance behaviour.

3. Data and Descriptive Statistics

3.1. Background on Survey

This paper uses a tailored representative household survey of the immigrant population in the Greater Dublin Area. The survey was conducted among 1500 immigrants aged 18 years or older, residing in the Greater Dublin Area, who arrived in Ireland between ten years and six months prior to the interview date, and who were not Irish or British citizens. Eligibility requirements were set to maximize the probability that migrants still kept contacts outside of Ireland but were already minimally established in Ireland so that contacts with their networks abroad could provide useful information.

The survey was conducted between February 2010 and December 2011 by Amarach Research, a reputable survey company with prior experience in conducting research surveys in Ireland, under close supervision of the research team.

The sample of immigrants in our survey is representative of the total immigrant population, both registered and non-registered, in the Greater Dublin Area. In order to per- form random sampling, 100 Electoral Districts (EDs) were randomly selected out of the 323 EDs in the Greater Dublin Area. This selection was performed according to probability- proportional-to-size sampling, in which size is defined as the total number of non-Irish and non-British individuals residing in Ireland, according to the 2006 Census of Ireland. After the first randomization level of ED selection, 15 households were selected within each ED using a random route approach, starting at initial addresses within each ED that were also selected randomly. Furthermore, in the presence of more than one eligible respondent in the household, the individual respondent within each

household was selected randomly based on a next-birthday rule. In the absence of the designated respondent, an appointment was set up for a later date.

All enumerators were initially trained by the research team and were subsequently supervised by the survey company and, randomly, by members of the research team. Each enumerator had to complete an enumeration report, listing each address approached, the number of callbacks and the outcome of each visit.[5] The enumeration reports were closely inspected and verified by the research team. If the randomization instructions were not followed, interviews had to be replaced.

When selected respondents declined to be interviewed, their characteristics (namely gender, approximate age, nationality and type of dwelling) were recorded to allow for the adjustment of sampling weights. The final data was weighted by nationality, age and gender of non-respondents.

The design of the survey questions and the data collection strategy were carefully developed in order to ensure that our sample is representative of all migrants, including illegal and non-registered migrants. The randomized procedure for selecting addresses within an ED was useful in capturing a representative selection of migrants, including those that were not registered in official data. The legal status of respondents was not asked and this was made clear to the respondents before the survey was administered. In addition, it was made clear to respondents that the data would be anonymized and not used for any purposes other than academic research. In order to maximize trust, interviewers were chosen from a broad range of backgrounds and received detailed classroom and in-the-field training, followed up by randomized quality checks.

Obtaining a representative sample of migrants is important in the context of our research as it avoids sample selection problems which are present in related work where data collection methodologies include surveys conducted in the border regions of sending countries (Amuedo-Dorantes and Pozo, 2006), or generally limited to return migrants and family members left in the home country (Agarwal and Horowitz, 2002; Lucas and Stark, 1985).

[5] Non-response due to no one being at home at the time of the visit were minimized by interviewers going back to an address up to five times on different days and at different times. This ensured that non-response was minimized and that a representative sample of migrants was selected.

In order to measure risk preferences in the domain of money, we use a hypothetical lottery question. This measure has been used by a number of studies in the literature,[6] and has been validated using real monetary payments by Dohmen et al. (2011).

The survey also includes a number of questions regarding remittances to encompass all channels that could be used to transfer money or gifts to individuals in the sending country. The survey allowed for the possibility of money transfers, money handed over in person (in Ireland or in the sending country) and gifts sent or given in person. The survey also included questions on the frequency and amount remitted and the cost of sending money and gifts home. Data on the characteristics of individuals that receive remittances, including age, gender, country of residence and relationship to the respondent were also collected.[7] In addition, survey respondents were asked a range of questions on their five closest social connections outside of Ireland, defined as the five individuals the migrant had the most regular contact with. In addition to basic demographic characteristics of social contacts, we also collected data on country of residence, and the relationship to the respondent. We use this information to construct our network variables.

In defining a respondent's main network contact, we considered the person who has received the largest share of remittances in case there is more than one recipient of remittances - which happens to only 35% of respondents. If the respondent has not sent any remittances in the year prior to the interview, the network variable is based on the characteristics of the main social contact (the person listed first when asked with whom the respondent has most contact with). Note that for those that did remit, the recipient of the remittances was also the main social contact in 91 % of cases.

Batista and Narciso (2013) and Batista and Umblijs (2014) present complementary analysis of the same migrant survey focusing on questions related to the importance of asymmetric

[6] See for example, Van Praag and Cramer (2001); Ahn (2010); Bonin et al. (2007); Zimmermann et al. (2009); Caliendo et al. (2010).

[7] The survey question asking about the relationship between the remitter and the remittance recipient allowed for the following possibilities: 1. Spouse/partner; 2. Parent/parent in law; 3. Sibling/sibling in law; 4. Child; 5. Other family member; 6. Friend; 7. Co-worker; 8. Other. This answer categorization allowed a clear classification of remittance recipients as family vs. non-family members.

information in transnational networks in determining remittance flows, and the role of risk attitudes in migrant entrepreneurship.

3.2. Descriptive Statistics

Table 1 presents a brief description of each variable used in our empirical analysis, together with descriptive statistics. Our sample includes 1354 immigrants from a broad range of countries. The three most popular origin countries are Nigeria, Poland and India. All other country groups consist of less than 5% of the sample. Other European Union 'New Member States' are also represented, with the largest groups being Romanians, Lithuanians, and Latvians. The two largest migrant groups in Greater Dublin by World Region of Birth are Africa and Asia.

Still according to Table 1, a little over than half of immigrants in our sample are female. They average 33 years of age and nearly 15 years of schooling. 40% of the respondents are married or in a stable relationship, and 45% have children. They average a net monthly wage of 1162 EUR, and close to 25% work under a temporary contract. One fifth of the respondents reports being a student, while 12% works in the health sector and 11% in ICT. Nearly 9% of respondents report being unemployed. In terms or religion, 68% of the respondents in our sample followed a Christian religion, whereas 10% were Muslim and 11% followed no religion.

Finally, immigrants in our sample were reportedly living in Ireland for an average of 7 years and 53% of them reported their wish to eventually return to their home country. 31% of our respondents were married to or in a stable relationship with someone with the same nationality as themselves, and 4% to an Irish partner.

Our measure of willingness to take risks is based on a hypothetical lottery question as shown in Figure 1. The results from the question range from 0 (corresponding to no lottery purchase) to 10 (corresponding to spending all available 100,000 Euros in a risky lottery). Figure 2 shows the distribution of responses to the hypothetical lottery question. According to Figure 2, the most common answer to the hypothetical lottery question was not to gamble any of the money, while the other responses approximate a normal distribution with mean at gambling 60% of the available amount.

As shown in Table 1, 36% of immigrants in our sample report having sent money at least once in the year preceding the interview, while less than 12% report having savings in Ireland. From those that did send money home, the amount varied significantly as shown in Figure 3, ranging from EUR 3 to EUR 10,000. The main remittance recipient is not a family member in 84% of the interviews, and this main remittance recipient was working at the time of the interview in 64% of the cases.

There is a substantial variety in the probability of remitting across world regions of birth. As shown in Table 2, migrants from Africa are the most likely to remit with 40% sending some money home, migrants from Asia are the second most likely to remit (36% do so in our sample). While 31% of the EU New Member State migrants remit money home, only 7% of pre-2004 enlargement EU states send remittances home.

Regarding the relationship between risk aversion and the probability of remitting, a simple comparison of averages for the total sample shows that a larger proportion of risk averse individuals send remittances compared to risk loving individuals. Table 3 shows that, while only 27% of risk-loving individuals sent remittances, 40% of risk-averse migrants sent money to their networks abroad.

Table 4 describes the covariates of risk aversion. Overall, and most importantly, the results are consistent with the existing literature, namely with a (weak) negative relation between income and risk aversion. Interestingly, students are very strongly negatively correlated with risk aversion. The marital situation of migrants also seems to be strongly correlated with risk aversion: those whose partner also lives in the host country seems to be significantly more risk averse, although sharing the same nationality of the partner is associated with lower risk aversion. Finally, those migrants who remit to non-family members seem to be particularly more risk averse, both in terms of magnitude of the estimated coefficient and of its statistical significance.

4. Empirical Results

Risk Aversion and Remittances

Table 5 presents estimates for the relationship between risk aversion and remittances both at the extensive and intensive margin. Column (1) of Table 5 suggests that there is a statistically significant positive relationship between risk aversion and the probability of remitting, as well as the amount remitted: being risk averse (according to our empirical definition) corresponds to a 52 percentage point increase in the probability of remitting and 30 percentage point increase in the amount remitted.

These controls include short contract duration (as a proxy for wage risk in the host country) and the intention to return (as a proxy for the likelihood of needing to use insurance upon return). According to the existing literature, both these variables should correlate positively with the demand for self-insurance via remittances. We indeed obtain positive coefficients but they are not precisely estimated when we account for individual risk aversion. We also control for savings, which could be regarded as an alternative way for migrants to obtain self-insurance against adverse shocks in the host country. This coefficient shows, however, positively in our estimation, although not very precisely estimated, which may indicate that savings are a complementary to remittances as a way for migrants to obtain self-insurance.

Note that the dummy variable 'Risk Averse', as used in columns (1) of Table 5, is defined as investing less than EUR 10,000 in the hypothetical lottery and corresponds to approximately 50% of the responses in our sample of migrants. Columns (2) and (3) of Table 3 shows that the relationship between risk aversion and remittances keeps holding positive and significantly when risk version is defined as investing less than EUR 20,000 (Risk Aversion alternative 1) or EUR 5,000 (Risk Aversion alternative 2) in the hypothetical lottery.

Income Risk and Remittances

Table 6 shows how the probability of remitting correlates with temporary employment contracts, with duration of less than one year – a proxy for wage risk faced by migrants. The reference group is given by individuals with permanent employment contracts. Results are shown for when temporary is interacted with the risk aversion dummy. The results in Table 6 suggest that

the relationship between having a temporary contract and the probability of sending remittances is especially significant for risk-averse individuals. The results suggest that while having a temporary contract is associated with a lower probability of remitting and with remitting less relative to the control group, being risk averse and having a temporary contract is associated with a higher probability of remitting and sending more remittances.

This evidence strengthens our hypothesis that, when facing additional income risk in the host country, risk averse individuals will remit more in an attempt to purchase additional self-insurance from their network members at the origin.

Table 7 investigates the relationship between intention to return and remittances, including risk aversion interaction terms. The results shows that expressing an intention to return while being risk averse is associated with an increased probability of remitting.

These results show that remittances sent by risk averse migrants are increasing with the likelihood of returning to the origin country and benefiting from any "insurance" the migrant has purchased with remittances

Status of Network Members and Remittances

As well as the relationship of the remittance recipient to the migrant, the financial situation of the home network also may play a role in the decision to send money home as a method of self-insurance. Migrants wanting to insure themselves via remittances do so with the expectation of receiving financial assistance from home network members in case of a negative outcome in the future, making the financial situation of contacts at home an important consideration. Sending remittances will only function as an insurance mechanism if the migrant believes that the network member at home is in a position to provide financial assistance when required. Therefore, the insurance motive is likely to dominate when home network members have more resources, while altruism usually dominates when networks are less financially stable. We test this hypothesis by utilizing information on the employment status of network members. In our sample 67% of network members are currently employed and we would expect the insurance motive to be stronger for migrants sending remittances to this group compared to those with network members not working.

Table 8 shows the results of the intensive and extensive margin for the employment situation of the remittance recipient. The results in Table 8 suggest that there is a positive link between having an employed network member and being risk averse. Similar results can be seen for the intensive margin, where there is a (marginally) significant positive link between having an employed network member and being risk averse.

This evidence lends some support to the hypothesis that migrants target network members with good economic status to purchase self-insurance by sending remittances to these "well-off" network members.

Outside Family Networks and Remittances

It is likely that altruistic motives dominate for remittances to immediate family (such as parents, children or spouses). This proposition would imply that remitting to a network contact outside the immediate family is therefore relatively more likely to follow the self-insurance motive for remittances. We test this implication, by examining the remittance impact of having a main network contact outside of the immediate family.

The results confirm that having a main network contact outside of the immediate family is associated with a lower probability of sending remittances as well as remitting a lower amount in the year prior to the survey, as shown by Table 9 Columns (1) and (2). However, when we investigate the interaction term for being risk averse and remitting outside of the immediate family, the results support our hypothesis that more self-insurance motivated remittances are sent to the network members outside of the immediate family.

5. Discussion of Results

Our results suggest that there is a positive relationship between risk aversion and remittances. Given that we control for individual key characteristics, this measure is a good proxy for the inherent risk preference of individuals in the domain of money. In addition, this type of risk measure has been validated using real monetary incentives for the German Socioeconomic Panel study by Dohmen et al. (2011), which lends confidence that this hypothetical question is able to capture actual risk attitudes in the domain of money of the individuals in our survey.

We are also able to test the relationship between wage risk and remittances. As in Amuedo-Dorantes and Pozo (2006) we also found evidence that migrants on temporary contracts are more likely to remit than those with permanent contracts. However we include an additional test to support the suggestion that the link between wage risk and remittances is due to the insurance motive by interacting the contract type variables with our risk preference variable. As suggested by our hypothesis, we find that having a non-permanent contract is only significantly related to remittances for the risk-averse individuals in our sample.

Given that migrants who intend to return are more likely to benefit from the support of network members after return, we also investigated the link between intention to return and the probability of remitting. While we find no strong significant link between the intention to return and remittances in general, we do find a significant positive link for this relationship for risk-averse individuals. This corresponds to the insurance motive for remittances as risk-averse individuals have a stronger preference to purchase insurance, and these risk-averse individuals with an intention to return have a higher incentive to remit for insurance purposes as they are most likely to benefit from this insurance.

We also look at the relationship between the employment status of the network member and remittances. We expect that employed network members are more likely to have the resources to assist migrants in case of difficulty and are therefore more likely targets of remittances sent with the purpose of self-insurance. We find that while risk loving migrants are less likely to send remittances if network members are employed, risk averse migrants are more likely to send remittances if network members are employed. This supports the hypothesis that risk-averse migrants have a higher preference for insurance and therefore remit more when networks have a more stable situation. Risk loving individuals have a lower preference for insurance and are more likely to remit for other motives such as altruism, in which case we would expect a negative link between the financial resources of the network and remittances.

6. Conclusions

The relationship between risk aversion and remittance behaviour was tested using a representative household survey of the immigrant population in the Greater Dublin Area, in

Ireland. We find a statistically significant positive relationship between immigrant risk aversion and both the probability to remit and the amount remitted by individuals in our sample.

The results suggest that being risk averse is associated with an increase in the probability of remitting of around 40 percentage points, and an increase in the amount remitted of around 30 percentage points. Examining specific groups in our sample we find that migrants on temporary contracts, those expressing an intention to return and those with employed network members are more likely to remit, the more risk averse they are. This relationship is robust to different specifications.

Our results support the hypothesis of a self-insurance motive for remittances. The use of an individual risk aversion variable allowed us to investigate this hypothesis in a novel way, accounting for relevant unobservable characteristics of immigrants, while strengthening the case already made in support of this hypothesis in previous literature. This is an important suggestive finding for policy-making in a world where the magnitude and importance of remittance flows particularly for developing countries keeps growing.

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Tables and Figures

Figure 1: Survey Question

LOTTERY QUESTION
Finally, please consider what you would do in the following situation.

Imagine that you had won **100,000 Euros in the lottery**.

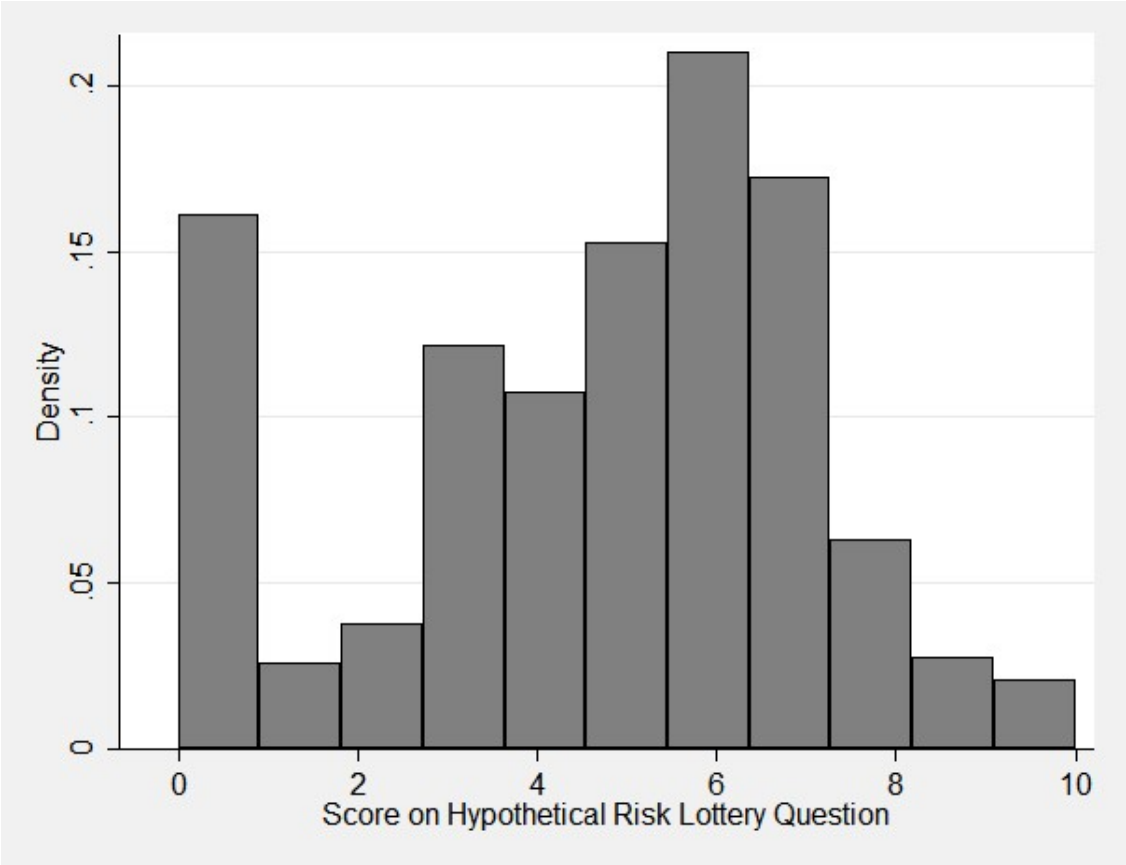
Almost immediately after you collect the winnings, you receive the following financial offer from a reputable bank, the conditions of which are as follows:
- There is the chance to **double the money within two years**.
- It is equally possible that you could **lose half of the amount invested within two years**.

You have the opportunity to **invest the full amount, part of the amount or reject the offer**.

L014: What share of your lottery winnings would you be prepared to invest in this financially risky, yet lucrative investment?

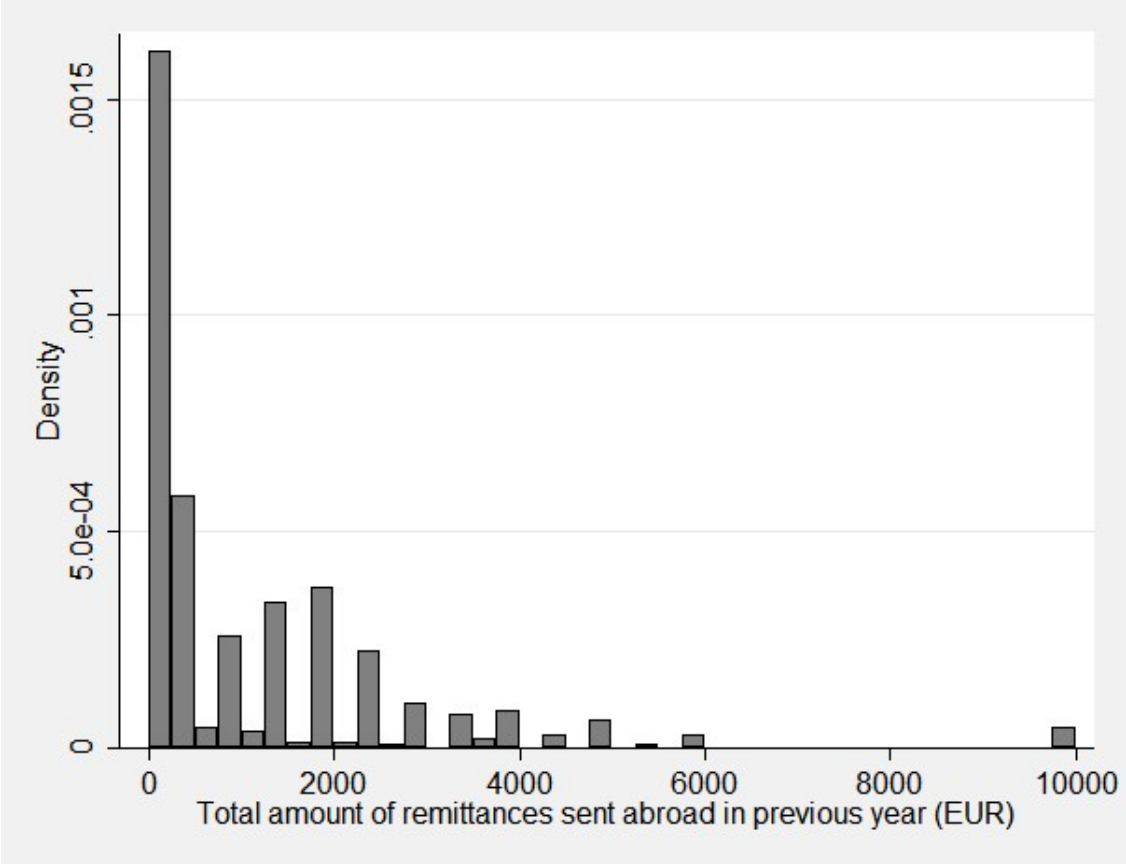
Nothing, I would decline the offer	0
100 Euros	1
500 Euros	2
1,000 Euros	3
5,000 Euros	4
10,000 Euros	5
20.000 Euros	6
40.000 Euros	7
60,000 Euros	8
80,000 Euros	9
All 100,000 Euros	10
Missing [Note: Do not read the Missing.]	99

Figure 2: Risk Preferences in Migrant Sample



Note: The figure shows the density distribution of risk preferences among migrants. The numbers scored reflect the answer to a hypothetical lottery question. The scale of the responses ranges from 0 to 10, with 10 corresponding to the highest willingness to take risks.

Figure 3: Amount of Remittances Sent Home in the Previous Year (EUR)



Note: The figure shows the density distribution of migrant remittances sent in the previous year in Euros. It represents the 36% of respondents that sent at least some remittances in the previous year.

Table 1: Variable Description and Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max	Description
Risk Averse	1354	.3995569	.4899883	0	1	Risk preferences in the domain of money using a hypothetical lottery question. Dummy variable for choosing to play less than EUR 10 000.
Risk Averse - Alternative 1	1354	.5339734	.4990288	0	1	Risk preferences in the domain of money using a hypothetical lottery question. Dummy variable for choosing to play less than EUR 20 000.
Risk Averse - Alternative 2	1354	.3050222	.4605869	0	1	Risk preferences in the domain of money using a hypothetical lottery question. Dummy variable for choosing to play less than EUR 5 000.
Remittance binary variable	1354	.3345643	.4720122	0	1	Respondent has remitted at least once in the last year.
Remittance amount	1354	424.5554	1125.133	0	10000	Amount remitted by respondent in previous year.
Self employed	1354	.0251108	.1565194	0	1	Respondent is self-employed.
Temporary Contract	1354	.2474151	.4316694	0	1	Respondent works under a temporary contract.
Return Intention	1354	.5265879	.4994771	0	1	Respondent states intention to return home.
Savings	1354	.1159527	.3202865	0	1	Respondent has savings in Ireland.
Female	1354	.5361891	.4988729	0	1	Respondent is female.
Age	1335	32.60899	7.983768	18	72	Respondent's age in years.
Years of Schooling	1337	14.57966	2.95801	0	17	Completed years of schooling.
Married	1354	.4032496	.4907313	0	1	Respondent is married or has stable partner.
Children	1354	.4519941	.497874	0	1	Respondent has children.
Income EUR	1221	1162.273	1093.486	0	10500	Respondent's monthly net income in EUR.
Unable to pay bills	1277	.4259984	1.263875	0	12	Amount of times household not able to pay bills in previous year.
No Family Network	1354	.8360414	.3703748	0	1	Network member is not a family member.
Employed Network	1238	.677706	.4675438	0	1	Network member is employed.
EU (NMS)	1354	.2001477	.4002586	0	1	Born in EU (New Member State).
EU (OMS)	1354	.0679468	.2517476	0	1	Born in EU (non-New Member State).
Africa	1354	.4468242	.497348	0	1	Born in Africa.
Asia	1354	.1536189	.3607163	0	1	Born in Asia.
North America	1354	.0169867	.1292691	0	1	Born in North America.
South America	1354	.0487445	.2154129	0	1	Born in South America.
Australasia	1354	.0051699	.0717422	0	1	Born in Australasia.
Manufacturing Sector	1329	.027088	.1624011	0	1	Respondent works in industry sector.
Construction Sector	1329	.03386	.1809369	0	1	Respondent works in construction sector.
ICT Sector	1329	.1136193	.3174677	0	1	Respondent works in communications sector.
Health Sector	1329	.1234011	.3290208	0	1	Respondent works in health sector.
Education sector	1329	.0195636	.1385471	0	1	Respondent works in education sector.
Student	1354	.1957164	.3968978	0	1	Respondent is a student.

Unemployed	1354	.0886263	.2843086	0	1	Respondent is unemployed.
Christian	1354	.6779911	.467419	0	1	Respondent is Christian.
Muslim	1354	.0974889	.296732	0	1	Respondent is Muslim.
No Religion	1354	.1107829	.313979	0	1	Respondent follows no religion.
Partner lives in Ireland	1354	.359675	.1652196	0	1	Respondent's partner lives in Ireland.
Same Nationality Partner	1354	.3146233	.4645373	0	1	Respondent's partner has same nationality.
Irish Partner	1354	.0406204	.1974821	0	1	Respondent's partner is Irish.
Years in Ireland	1335	7.055431	2.898314	1	10	Respondent's length of stay in Ireland (in years).

Table 2: Percentage of Migrants Remitting by Region of Birth

Region	Percent remit (%)
Africa	40
Asia	36
EU (NMS)	31
South America	19
North America	12
EU (OMS)	7
All - Average	33

Note: The Table shows the percentage of individuals from each world region of birth that have remitted money or sent goods home at least once in the last year. EU (NMS) refers to countries which joined the European Union after 2004, EU (OMS) refers to countries that where in the EU prior to 2004.

Table 3: Risk Aversion and Probability of Remitting

	Percentage remitting (%)
Risk Averse	40
Risk Loving	27

Note: The Table shows the percentage of individuals that have sent money or goods home at least once in the last year. 'Risk Averse' refers to individuals choosing to invest less than EUR 10,000 in the hypothetical lottery, 'Risk Loving' refers to individuals choosing to invest more than EUR 10,000 in the hypothetical lottery.

Table 4: Risk Aversion and Covariates used in Empirical Analysis

	Probit	S.E.
Female	0.014	(0.095)
Age	-0.005	(0.006)
Years of Schooling	-0.015	(0.020)
Married	-0.224	(0.344)
Having Children	-0.169	(0.182)
Income	-0.000*	(0.000)
Savings	0.101	(0.136)
Financial Distress Indicator	0.071*	(0.038)
Temporary Contract	0.137	(0.134)
Employed Network	0.072	(0.092)
Non-Family Network	0.249***	(0.095)
Self Employed	-0.046	(0.234)
Manufacturing Sector	-0.084	(0.212)
Construction Sector	-0.027	(0.301)
ICT Sector	0.194	(0.139)
Health Sector	0.249*	(0.147)
Education Sector	0.264	(0.285)
Student	-0.357***	(0.129)
Unemployed	-0.349	(0.223)
Christian	0.242	(0.201)
Muslim	-0.101	(0.172)
No Religion	-0.166	(0.174)
Africa	0.195	(0.132)
Asia	0.103	(0.180)
EU (NMS)	-0.059	(0.186)
Rest of the World	-0.005	(0.180)
Same Nationality Partner	-0.424**	(0.176)
Irish Partner	0.171	(0.239)
Partner Lives in Ireland	0.602*	(0.324)
Partner Lives in Same House	0.560	(0.367)
Year of Arrival	0.013	(0.016)
Observations	1107	
Pseudo R^2	0.116	

Marginal effects; Standard errors in parentheses, clustered by country of birth.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Note: The Table reports marginal effects of Probit estimates. The dependent variable in this regression is a binary variable taking value 1 for risk averse individuals, defined as those selecting to invest less than EUR 10 000 in the hypothetical lottery question described in Section 2. The explanatory variables are described in Table 1.

Table 5: Probability of Remitting and Risk Preferences

	(1) Double Hurdle		(2) Double Hurdle		(3) Double Hurdle	
Tier 1: Participation						
Risk Averse	0.515***	(0.086)				
Risk Aversion - Alt.1			0.340***	(0.086)		
Risk Aversion - Alt.2					0.442***	(0.088)
Temporary Contract	0.119	(0.107)	0.109	(0.108)	0.146	(0.107)
Return Intention	0.076	(0.092)	0.096	(0.092)	0.107	(0.092)
Savings	0.175	(0.126)	0.167	(0.125)	0.183	(0.125)
Tier 2: Level						
Risk Averse	0.306*	(0.166)				
Risk Aversion - Alt.1			0.346*	(0.180)		
Risk Aversion - Alt.2					0.242*	(0.145)
Temporary Contract	0.286	(0.192)	0.260	(0.190)	0.295	(0.193)
Return Intention	-0.227	(0.167)	-0.228	(0.166)	-0.201	(0.168)
Savings	0.581***	(0.195)	0.571***	(0.193)	0.585***	(0.195)
Controls	Yes		Yes		Yes	
Observations	1107		1107		1107	
Chi^2	175.591		157.249		168.848	

Marginal effects; Standard errors in parentheses, clustered by country of birth.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Note: The Table reports marginal effects of Double Hurdle estimates. Control variables include basic demographics, such as gender, age, years o schooling, religion, marital status, having children, industry of occupation, income, financial distress indicators, and world region of origin. We als include employment contract duration, reported intention to return, number of years in Ireland, partner living in Ireland and Irish partner, as well a employment status of the network member, and the presence of migrant savings.

Table 6: Remittances and Type of Contract: Extensive and Intensive Margins

	(1) Double Hurdle	
Tier 1: Participation		
Risk Averse	0.305***	(0.096)
Temporary Contract	-0.247*	(0.134)
Temporary Contract x Averse	0.779***	(0.185)
Tier 2: Level		
Risk Averse	0.136	(0.196)
Temporary Contract	-0.155	(0.292)
Temporary Contract x Averse	0.641*	(0.349)
Controls	Yes	
Observations	1177	
Chi^2	193.636	

Marginal effects; Standard errors in parentheses, clustered by country of birth.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Note: The Table reports marginal effects of Double Hurdle estimates. Control variables include basic demographics, such as gender, age, years of schooling, religion, marital status, having children, industry of occupation, income, financial distress indicators, and world region of origin. We also include employment contract duration, reported intention to return, number of years in Ireland, partner living in Ireland and Irish partner, as well as employment status of the network member, and the presence of migrant savings.

Table 7: Remittances and Intention to Return: Intensive and Extensive Margins

	(1) Double Hurdle	
Tier 1: Participation		
Risk Averse	0.302**	(0.128)
Return Intention	-0.090	(0.118)
Return Intention x Averse	0.392**	(0.170)
Tier 2: Level		
Risk Averse	0.116	(0.248)
Return Intention	-0.408*	(0.242)
Return Intention x Averse	0.361	(0.309)
Observations	1107	
Chi^2	179.643	

Marginal effects; Standard errors in parentheses, clustered by country of birth.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Note: The Table reports marginal effects of Double Hurdle estimates. 'Return Intention' is a dummy variable for intending to return in the next te years. Control variables include basic demographics, such as gender, age, years of schooling, religion, marital status, having children, industry o occupation, income, financial distress indicators, and world region of origin. We also include employment contract duration, reported intention t return, number of years in Ireland, partner living in Ireland and Irish partner, as well as employment status of the network member, and the presenc of migrant savings.

Table 8: Employment Status of Network Member and Remittances: Intensive and Extensive Margin

	(1) Double Hurdle	
Tier 1: Participation		
Risk Averse	0.218	(0.158)
Employed Network	-0.154	(0.116)
Employed Network x Averse	0.428**	(0.185)
Temporary Contract	0.106	(0.108)
Return Intention	0.064	(0.093)
Tier 2: Level		
Risk Averse	-0.051	(0.296)
Employed Network	-0.231	(0.244)
Employed Network x Averse	0.504*	(0.241)
Temporary Contract	0.268	(0.190)
Return Intention	-0.245	(0.166)
Controls	Yes	
Observations	1107	
Chi^2	186.076	

Marginal effects; Standard errors in parentheses, clustered by country of birth.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Note: The Table reports marginal effects of Double Hurdle estimates. Control variables include basic demographics, such as gender, age, years of schooling, religion, marital status, having children, industry of occupation, income, financial distress indicators, and world region of origin. We also include employment contract duration, reported intention to return, number of years in Ireland, partner living in Ireland and Irish partner, as well as employment status of the network member, and the presence of migrant savings

Table 9: Outside Family Networks and Remittances: Intensive and Extensive Margin

	(1)		(2)	
Tier 1: Participation				
Risk Averse	0.218	(0.158)	0.138	(0.277)
Employed Network	-0.154	(0.116)	0.264*	(0.138)
Employed Network x Averse	0.428**	(0.185)	0.287	(0.217)
Non-Family Net.			-1.959***	(0.158)
Non-Family Net. x Averse			0.419	(0.302)
Tier 2: Level				
Risk Averse	-0.051	(0.296)	-0.460	(0.313)
Employed Network	-0.231	(0.244)	0.037	(0.254)
Employed Network x Averse	0.504	(0.341)	-0.058	(0.357)
Non-Family Net.			-0.742***	(0.269)
Non-Family Net. x Averse			1.348***	(0.355)
Controls	Yes		Yes	
Observations	1107		1107	
Chi^2	186.076		323.453	

Marginal effects; Standard errors in parentheses, clustered by country of birth.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Note: The Table reports marginal effects of Double Hurdle estimates. Control variables include basic demographics, such as gender, age, years o schooling, religion, marital status, having children, industry of occupation, income, financial distress indicators, and world region of origin. W also include employment contract duration, reported intention to return, number of years in Ireland, partner living in Ireland and Irish partner, as wel as employment status of the network member, and the presence of migrant savings.